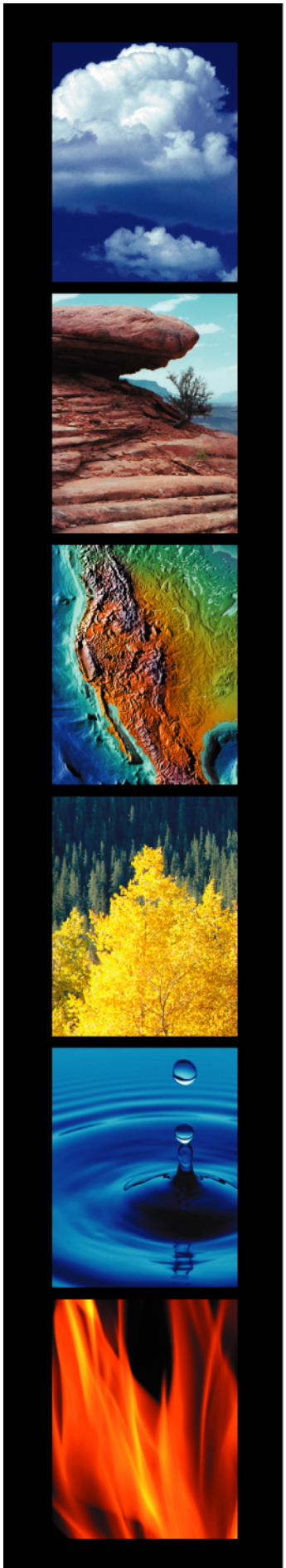

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Frontiers in Geoscience Colloquium

Tuesday, March 7, 2017
3:00pm – 4:00pm
Physics Auditorium (TA-3, Bldg 215)

The Critical Role of Water in Critical Zone Science: An Exploration of Water Fluxes in the Earth's Permeable Skin

Professor Kamini Singha

Colorado School of Mines

Dr. Singha is the National Groundwater Association 2017 Darcy Lecturer

Earth's "critical zone" — the zone of the planet from treetops to base of groundwater — is critical because it is a sensitive region, open to impacts from human activities, while providing water necessary for human consumption and food production. Quantifying water movement in the subsurface is critical to predicting how water-driven critical zone processes respond to changes in climate and human perturbation of the natural system. While shallow soils and aboveground parts of the critical zone can be easy to instrument and explore, the deeper parts of the critical zone — through the soils and into rock — are harder to access, leaving many open questions about the role of water in this environment.

This presentation opens the black box in the subsurface and sheds light on a few key subsurface processes that control water movement and availability: linkages between changes in evapotranspiration and subsurface water stores, water movement in three dimensions over large areas, and potential control of slope aspect on subsurface permeability. Geophysical tools are central to the quantitative study of these problems in the deeper subsurface where we don't have easy access for observation.

Host: Elchin Jafarov, EES-16, 665-8183

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